

Basic algebra

Topic Test

PART A

Instructions

This part consists of 12 multiple-choice questions

Each question is worth 1 mark

Fill in only ONE CIRCLE for each question

Calculators are NOT allowed

Time allowed: 15 minutes

Total marks = 12

					Marks
1	If $a = -4$ and $b = 3$ the value of a^2b is				
	(A) 48	(B) 144	(C) -24	(D) -48	1
2	$a^3 + a^3 =$				
	(A) a^6	(B) a^3	(C) $2a^6$	(D) $2a^3$	1
3	$15x^8 \div 5x^4 =$				
	(A) $3x^4$	(B) $3x^2$	(C) $10x^4$	(D) $10x^2$	1
4	$2a \times 3a \times 4a =$				
	(A) $9a$	(B) $9a^3$	(C) $24a$	(D) $24a^3$	1
5	$\frac{1}{x} \times \frac{1}{y} =$				
	(A) $\frac{1}{xy}$	(B) $\frac{y}{x}$	(C) $\frac{x}{y}$	(D) xy	1
6	$3x - (-x) =$				
	(A) 3	(B) $3x$	(C) $3x^2$	(D) $4x$	1
7	$3y^2 - 2y + 5y + 4y^2 =$				
	(A) $7y^2 + 3y$	(B) $7y^2 - 7y$	(C) $7y^3 + 3y$	(D) $7y^4 - 7y$	1
8	$7t^3 \times (-4t^2) =$				
	(A) $3t^5$	(B) $3t^6$	(C) $-28t^5$	(D) $-28t^6$	1
9	$3(x + 4) - x =$				
	(A) 12	(B) 15	(C) $2x + 4$	(D) $2x + 12$	1
10	$(4x^3)^2 =$				
	(A) $4x^5$	(B) $4x^6$	(C) $16x^5$	(D) $16x^6$	1

				Marks
11	$\frac{6a^2}{2ab} =$	<div>Ⓐ $3ab$</div> <div>Ⓑ $\frac{3a}{b}$</div> <div>Ⓒ $6b$</div> <div>Ⓓ $\frac{6}{b}$</div>		1
12	$3ab - b + ab - 2b =$	<div>Ⓐ $2ab - b$</div> <div>Ⓑ $2ab - 3b$</div> <div>Ⓒ $4ab - b$</div> <div>Ⓓ $4ab - 3b$</div>		1
13	$\frac{x^4 x^6}{x^2} =$	<div>Ⓐ x^5</div> <div>Ⓑ x^8</div> <div>Ⓒ x^{12}</div> <div>Ⓓ x^{22}</div>		1
14	$(y^6 y^2)^2 =$	<div>Ⓐ y^5</div> <div>Ⓑ y^6</div> <div>Ⓒ y^8</div> <div>Ⓓ y^9</div>		1
15	The correct factorisation of $2ab - a$ is	<div>Ⓐ $2a(b - 1)$</div> <div>Ⓑ $2a(b - a)$</div> <div>Ⓒ $a(2b - 1)$</div> <div>Ⓓ $a(2b - a)$</div>		1
Total marks achieved for PART A				15

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PART B

Instructions

This part consists of 15 questions

Each question is worth 1 mark

Write answers in the answers-only column

Time allowed: 20 minutes

Total marks = 15

Questions	Answers only	Marks
1 Simplify $3y - 4y - y$	<hr/>	<div>1</div>
2 Simplify $6a^2 \times a$	<hr/>	<div>1</div>
3 Factorise $7x + 14y$	<hr/>	<div>1</div>
4 If $\frac{x}{4} = 11$ find x	<hr/>	<div>1</div>
5 Expand $3x(2x - 5y)$	<hr/>	<div>1</div>
6 If $a = 3$, $b = -2$ and $c = 0$, find the value of $3a + 2b - c$	<hr/>	<div>1</div>
Simplify the following.		
7 $\frac{6x^3}{x^2}$	<hr/>	<div>1</div>
8 $(3a^2b)^2$	<hr/>	<div>1</div>
9 $\sqrt{49x^2}$	<hr/>	<div>1</div>
10 $36m^3 - 12m^3$	<hr/>	<div>1</div>
11 $\frac{8a}{9} - \frac{3a}{9}$	<hr/>	<div>1</div>
12 $\frac{3x+5}{4} + \frac{x}{4}$	<hr/>	<div>1</div>
13 $\frac{xy}{3} \times \frac{9}{xy}$	<hr/>	<div>1</div>
14 $\frac{4a}{5} \div \frac{a}{10}$	<hr/>	<div>1</div>
15 $3(a - 4) + 4(a + 2b)$	<hr/>	<div>1</div>

Total marks achieved for PART B

15

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PART C

Instructions This part consists of 4 questions
Each question is worth 5 marks
Show all necessary

Time allowed: 20 minutes

Total marks = 20

Questions	Marks
<p>1 If $a = 2$, $b = -4$ and $c = -6$, find the value of each expression.</p> <p>a abc _____</p> <p>b $5(a + b + c)$ _____</p> <p>c $5ab^2$ _____</p> <p>d $3ab + 2c$ _____</p> <p>e $a^2 + b^2 - c^2$ _____</p>	5
<p>2 Simplify.</p> <p>a $-7a + 6a + 4a$ _____</p> <p>b $6a + 5(3 - a)$ _____</p> <p>c $-8(2a + 3b) + a$ _____</p> <p>d $\frac{9}{a} - \frac{5}{a}$ _____</p> <p>e $\frac{3x}{5} + \frac{2x}{17}$ _____</p>	5
<p>3 Expand and simplify.</p> <p>a $9x - 3(x + 5)$ _____</p> <p>b $x(3x - 2) - 3(x^2 - x)$ _____</p> <p>c $25 - (x + 17)$ _____</p> <p>d $-9(x - y) + 3(2x - y)$ _____</p> <p>e $-6(a + 2b) - 2(b - a)$ _____</p>	5
<p>4 Factorise.</p> <p>a $3x - x^2$ _____</p> <p>b $3p^2q + 12pq^2$ _____</p> <p>c Solve $3(x - 1) = 6$ _____</p> <p>Simplify the following.</p> <p>d $5p^2 \times q^5 \times pq$ _____</p> <p>e $\frac{15a^3b^2}{8ac^2} \div \frac{25ab}{(2c)^2}$ _____</p>	5

Total marks achieved for PART C

20